

Section 3

Stormwater Management

3.1 Overview

In any urban setting, stormwater runoff tends to have some detrimental water quality impacts. This portion of the SEPP was designed to address these impacts and assist the City with compliance under the federal stormwater regulations such as the National Pollutant Discharge Elimination System (NPDES) Phase II.

Public education on the causes of stormwater pollution and the environmental benefit to minimizing such pollution is an important step in improving the quality of stormwater. The stormwater management program, including tasks such as catch basin stenciling and structural stormwater treatment, was therefore conducted in close coordination with other SEPP projects such as the restoration of urban ponds (Section 5) and environmental education (Section 7).

3.2 Goals

Goals for the stormwater management project included:

- Characterize the stormwater system, including inventorying and mapping structures and pipes, as well as implementing an illicit connection detection and elimination program;
- Investigate Best Management Practices (BMPs), including assessing existing practices, implementing recommended improvements, developing a construction site stormwater control program, and implementing BMP measures for municipal operations;
- Design and construct alternative stormwater controls, where appropriate, including assessing areas suitable for stormwater control and updating the drain system master plan;



Many projects funded under other portions of the SEPP, such as these catchbasins installed at Crystal Lake under the Urban Pond Restoration Program, benefited stormwater quality. Photo courtesy R. Robinson, EPD.

- Coordinate public education/involvement programs, including public outreach, municipal officials education, catch basin stenciling, and bank cleanup projects; and
- Comply with EPA stormwater rules, including developing a stormwater master plan and a long-term monitoring program.

3.3 Benefits Achieved

A Stormwater Management Plan was developed by the City in compliance with the EPA stormwater regulations. The details of the plan became the basis for the City's stormwater permit under the NPDES program. Copies of the City's Notice of Intent and annual reports detailing work completed are available at <http://www.epa.gov/region1/npdes/stormwater/nh.html>. The Notice of Intent includes specific measurable goals for each listed BMP.

To address the remaining tasks and to implement the programs outlined in the City's stormwater permit, an environmental permits coordinator was hired by the City. Rick Cantu took this position in the spring of 2003. Tasks completed to date include the following.

Stormwater System Characterization

During the first half of 2003, a number of studies and reports characterizing the stormwater system were completed. These included¹:

1. *Piscataquog River Phase I Illicit Discharge and Elimination Program Dry Weather Outfall Assessment Report.*
2. *Merrimack River Phase I Illicit Discharge and Elimination Program Dry Weather Outfall Assessment Report.*
3. *GIS Analytical Tool Recommendation.*
4. *Public Education and Public Involvement/Participation Assessment Report.*
5. *Storm System Operating Procedures (SOPs) Assessment.*
6. *Ordinances and Regulations, Design and Construction Standards, and Inspection and Enforcement Assessment Report.*
7. *Phase I Scope of Services Manual*

In addition, wet weather assessments of selected urban ponds were completed in coordination with the Manchester Highway Department. The wet weather assessments included sampling at selected urban pond outfalls to analyze “first flush” conditions. The “first flush” is the initial wash of rain which tends to carry a higher pollutant load than subsequent runoff as it washes deposits that have built up on surfaces during the dry weather.

BMP Investigation and Stormwater Controls

Several stormwater quality projects were implemented in conjunction with the streambank and pond projects. These are discussed in Sections 4 and 5.

Public Education/Involvement

Several catchbasin stenciling projects were completed in conjunction with the education portion of the SEPP. These are discussed further in Section 6.



Tannery Brook, the inlet to Nutts Pond receives stormwater runoff from local businesses' parking lots.

Compliance with Regulations

As mentioned above, implementation of the City's stormwater permit and the SEPP constitutes compliance with NPDES regulations.

Merrimack River Watershed Assessment Study – United States Army Corps of Engineers

Together with other communities on the Merrimack River, Manchester formed the Merrimack River Basin Community Coalition in response to regulatory requirements to mitigate CSO discharges. The Coalition secured the assistance of the U.S. Army Corps of Engineers (USACE) to assess the water quality of the Merrimack River. The study costs were covered 50 percent by federal dollars and 50 percent by local dollars, with Manchester's portion equal to \$200,000. More information and study reports are available from the U.S. Army Corps webpage.²

3.4 Measurable Results and Long Term Benefits

Phase I of the USACE Merrimack River study is complete.

The City has been in compliance NPDES Phase II stormwater regulations since initiation of the

¹ All reports prepared in Spring 2002 by Malcolm Pirnie, Inc.

² <http://www.nae.usace.army.mil/projects/ma/merrimack/merrimack.htm>

regulations. The programs listed in Manchester's Phase II Notice of Intent³ will continue through the City's permit period which ends in 2008.

Characterization of the stormwater system is complete.

Rick Cantu will continue to monitor stormwater regulations and coordinate stormwater projects from his position in Manchester's Department of Highways – Environmental Protection Division.

3.5 Leveraged Funding

The City spent \$946,500 on implementation of the above stormwater projects since the SEPP was initiated.

As the USACE study had fifty percent federal match, Manchester's portion of the leveraged funding from the match is \$200,000.

Total leveraged funds: \$200,000

³ <http://www.epa.gov/NE/npdes/stormwater/nh.html>